Wisconsin Knowledge and Concepts Examinations **WI**
Criterion-Referenced Test

Guide to

Grade 8

Released Item Books
In READING and MATHEMATICS

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Guide to Grade 8 Released Item Books in Reading and Mathematics

This document contains information for using, scoring, and interpreting the released items in reading and mathematics.

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Guide to Released Item Books

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Introduction

What are released items?

The items in the Reading and Mathematics released item books are actual items from the fall 2005 state assessment, the Wisconsin Knowledge and Concepts Examinations—Criterion-Referenced Test (WKCE-CRT). These items will not be used again on the state assessment and may, therefore, be used in Wisconsin for professional development, improving instruction, and student practice. The items in the released item books illustrate the formats and kinds of items that students will encounter on the WKCE-CRT.

How do I use the released item books and this guide?

Professional Development

Released items are useful as educators engage in conversations about what students are expected to know and be able to do to demonstrate proficiency on the state assessments relative to the state model academic standards. Released items can inform discussions about state and local standards, curriculum, instruction, and assessment.

This guide provides instructions for administering the released item books as practice tests and information for scoring the items, including scoring guides and anchor papers for the constructed-response items. The item information tables identify the answer key, what each item measures, depth of knowledge, and item difficulty. Item difficulty is presented as both the percentage of students who answered the item correctly and the scale score location of the item. The item's scale score location describes where the item functions along the ability scale. Items with higher scale score locations are considered more difficult than items with lower scale score locations. Students with scale scores above the scale score location of the item would have a greater probability of answering the item correctly than students with scale scores below the item's scale score location.

Improving Instruction

Teachers may use released items in classroom activities that help students understand how to:

- solve problems
- determine which answer choices are correct, which are incorrect, and why
- respond to constructed response items with complete, thoughtful answers
- approach long and/or multi-step tasks
- use good test-taking strategies.

Student Practice

Students may perform better and with less anxiety if they are familiar with the format of the test and with the types of items they will be required to answer. Note that a student’s score on the practice test cannot be converted to a total scale score, used to predict performance on the operational WKCE-CRT, or used to make inferences about the student’s learning.

Reading

Sample Directions for Administering the Reading Test

Make sure each student has his or her own test book, a No. 2 pencil, an extra eraser, and scratch paper. Students' test books should be closed.

SAY **In this test, you will read some passages and answer both multiple-choice questions and short-answer questions about those passages. Multiple-choice questions are questions that ask you to choose the best answer. Remember, for the multiple-choice questions, you must fill in the circle completely and make your mark heavy and dark. If you want to change an answer, completely erase the mark you made before making a new mark. You must fill in only one circle for each multiple-choice question.**

Short-answer questions are questions that ask you to write your answer instead of filling in a circle. Write your answer on the lines in your test book. You may also write in the space under the lines, but your answer must stay inside the boxed area. Answers or parts of answers written outside the boxed area will not be scored. You may use scratch paper to help you plan your answer, but remember to write your answer in the boxed area in your test book. After you have written your answer, be sure to read it to make sure you have written your ideas clearly and completely.

For both the multiple-choice questions and the short-answer questions, remember to look back at the reading passages to help you answer the questions. For some questions, you may need to go back to two reading passages to find the answer. Be sure to look back at both reading passages to help you answer these questions.

You will have 40 minutes to do the test. Work until you come to the word "STOP" at the bottom of the page. You may go back and check your answers. When you have finished, sit quietly until everyone else has finished.

Are there any questions?

When you are sure that all students understand the directions, continue.

SAY **Please open your test book to Page 2.**

Demonstrate. Check to be sure that all students are in the correct place in their test books.

SAY **You may begin.**

Record the starting and stopping times.

Record the Starting Time:	Add 40 Minutes:	Record the Stopping Time:
_____	**+ 40**	_____

Check to be sure that students are marking their answers in the appropriate places in their test books.

At the stopping time,

SAY **Stop. This is the end of the test. Please close your test book.**

Collect all test materials. Use the information on the following pages to score the multiple-choice and constructed-response items.

Reading Item Information

Item	Answer Key	Objective/ Subskill	Depth of Knowledge Level	2005 –06 Item Statistics SR: Percent of Students who Chose A, B, C, or D (*Indicates Correct Response). BCR: Percent of Students who Received 0, 1, 2, or 3 Points Format	A or 0	B or 1	C or 2	D or 3	Scale Score Location
1	A	2.1	1	SR	*91%	4%	1%	3%	453
2	A	1.1	1	SR	*86%	7%	5%	2%	469
3	A	3.1	3	SR	*90%	1%	1%	7%	449
4	C	2.1	1	SR	3%	1%	*94%	2%	445
5	B	3.1	3	SR	5%	*77%	4%	14%	483
6	A	3.3	2	SR	*71%	8%	2%	19%	510
7	A	4.1	3	SR	*83%	2%	10%	5%	482
8	C	4.1	4	SR	8%	13%	*71%	7%	513
9		3.1	3	BCR	6%	44%	38%	9%	574
10	A	3.2	3	SR	*67%	3%	27%	2%	557
11	D	3.3	3	SR	6%	11%	16%	*66%	524
12	A	2.3	2	SR	*59%	24%	4%	12%	547
13	D	1.1	1	SR	3%	13%	5%	*78%	485
14	B	1.3	2	SR	17%	*76%	3%	4%	517
15	D	4.2	2	SR	5%	16%	4%	*75%	505
16	A	2.2	1	SR	*89%	4%	2%	4%	461
17	D	2.2	1	SR	5%	33%	4%	*57%	549
18	C	4.3	4	SR	28%	5%	*53%	13%	557
19	C	3.2	3	SR	26%	14%	*42%	17%	636

Objective/Subskill and Depth of Knowledge Level information follows this table.
SR: selected response; BCR: brief constructed response.

Performance Category Scale Score Range

Minimal Performance	Basic	Proficient	Advanced
444 and below	445–479	480–538	539 and above

Reading Objectives and Subskills

Types of Text

The grade 8 reading assessment presents a variety of grade-appropriate reading passages representing literary, informational, and everyday text. Passages may be up to 1,500 words long and some passages may be paired with other, related passages. Students may be asked to read and answer questions about texts such as these:

Literary	Informational	Everyday
Short stories, novel excerpts, poetry, drama, biography, autobiography	Magazine, textbook, and newspaper articles, government documents, historical papers, reports, manuals, reviews, editorial cartoons	Charts, schedules, forms, timelines, applications, product use or warning labels, safety notices, simple instructions

Objectives, Subskills, and Descriptors

Objectives (labeled 1, 2, 3, and 4) and subskills (labeled 1.1, 1.2, etc.) denote general knowledge and skills that are assessed and reported on the WKCE-CRT. Bulleted descriptors are *examples* of specific knowledge or skills that may be included within each subskill. The subskills include knowledge and skills *such as, but not limited to* the descriptors.

1. Determine the meaning of words and phrases in context.

1.1. Use context clues to determine the meaning of words and phrases.

- Use context clues to determine the meaning of unfamiliar words.
- Understand the meaning of words and phrases used figuratively.
- Use context clues to determine the meaning of multiple-meaning words.
- Use knowledge of synonyms and antonyms to determine the meaning of words.
- Identify analogies to demonstrate understanding of word meaning.
- Understand connotative and denotative meaning of words.

1.2. Use knowledge of word structure to determine the meaning of words and phrases.

- Identify the meaning of a word with an affix.
- Use knowledge of root words to determine the meaning of a word.

1.3. Use word reference materials to determine the meaning of words and phrases.

- Use an entry from a word reference to determine word meaning and pronunciation.

2. Understand text.

2.1. Demonstrate understanding of literal meaning by identifying stated information in literary text.

- Identify stated information about story elements.

2.2. Demonstrate understanding of literal meaning by identifying stated information in informational text.

- Identify stated information about main ideas and supporting details.
- Identify stated information provided through text features.

2.3. Demonstrate understanding of explicitly stated sequence of events in literary and informational text.

- Identify first, next, and last events.
- Follow steps in a process.

3. Analyze text.

3.1. Analyze literary text.

- Make inferences about story elements.
- Summarize important ideas and events.
- Analyze stated or implied theme, message, or main idea.
- Draw conclusions.
- Identify purpose.
- Analyze diverse viewpoints.

3.2. Analyze informational text.

- Identify implied main ideas and supporting details.
- Identify implied relationships (such as cause/effect and compare/contrast).
- Summarize information.
- Identify purpose.
- Make inferences based on text features.
- Make inferences based on visual information.
- Make inferences about text structure.
- Analyze diverse viewpoints.
- Use graphic organizers to analyze and classify information.

3.3. Analyze author's use of language in literary and informational text.

- Analyze the use of literary devices.
- Recognize and distinguish among genres.
- Make inferences about the author's tone.
- Make inferences about the author's style.
- Analyze the author's use of rhetorical devices.
- Distinguish among types of language (such as formal/informal, literary/technical, and serious/humorous).

4. Evaluate and extend text.

4.1. Evaluate and extend literary text.

- Make connections to text.
- Make predictions.
- Identify and evaluate the author's purpose, point of view, and effectiveness.
- Evaluate diverse viewpoints and influences.
- Distinguish between important and unimportant details.
- Evaluate the credibility of story elements.
- Draw conclusions.

4.2. Evaluate and extend informational text.

- Make connections to text.
- Make predictions.
- Identify and evaluate the author's purpose, point of view, and effectiveness.
- Distinguish between facts and opinions.
- Evaluate the accuracy, currency, and credibility of information.
- Evaluate diverse viewpoints and influences.
- Distinguish between important and unimportant facts.
- Draw conclusions.

4.3. Evaluate and extend the author's use of language in literary and informational text.

- Evaluate the author's word choice and use of language.
- Recognize bias and propaganda in language.

Reading Depth of Knowledge

These depth of knowledge levels are intended to reflect the level of cognitive demand placed on students by test items. As the level of cognitive demand increases, so does the mental effort and integration of information required to answer a test item successfully. Each level represents important cognitive skills, and each level requires the use of cognitive skills in lower levels. For example, a student who is asked to make connections between two texts (level 4) would also need to recall pertinent details from the texts (level 1), understand stated information in the texts (level 2), and make inferences and draw conclusions about each text (level 3). The levels assume grade-appropriate text, vocabulary, and tasks. Test items should represent a range of depth of knowledge levels, and items within each level may represent a range of difficulty as indicated by percentage of students who answered the item correctly or scale score location.

Level 1: Recognizing and Recalling

Students demonstrate a grade-appropriate ability to recognize or recall basic facts, terms, or definitions. For example, a student might be asked to identify an explicitly stated main idea in a text.

Level 2: Using Fundamental Concepts and Procedures

Students demonstrate a grade-appropriate ability to use basic facts, definitions, skills, or concepts. For example, a student might be asked to use information in a text to complete a graphic organizer.

Level 3: Concluding and Explaining

Students demonstrate understanding of grade-appropriate text by using stated and implied information and text elements to draw conclusions. Students explain and convey ideas effectively. For example, a student might be asked to provide details and examples from a text to support a conclusion.

Level 4: Evaluating, Extending, and Making Connections

Students demonstrate their knowledge of concepts when evaluating or interpreting grade-level text. Students make connections among texts, common experiences, and issues. For example, a student might be asked to evaluate an author's effectiveness in achieving an intended purpose.

Reading Rubric for Constructed-Response Items

3 points

- The response demonstrates *thorough understanding* of the reading concept embodied in the task.
- The response is *accurate, complete, insightful, and fulfills all the requirements* of the task.
- Necessary support and/or examples are included.
- Information is clearly *text-based*.

2 points

- The response demonstrates *partial understanding* of the reading concept embodied in the task.
- The response is *accurate* and *fulfills most of the requirements* of the task.
- Necessary support and/or examples may not be complete or clearly text-based.

1 point

- The response demonstrates *an incomplete understanding* of the reading concept embodied in the task.
- The response provides *some information that is text-based*, but does not fulfill the requirements of the task.
- Information provided is *too general* or *too simplistic*.
- Necessary support and/or examples may be incomplete or omitted.

0 points

- The response demonstrates *no understanding* of the reading concept embodied in the task.
- The response is *inaccurate, confused*, or *irrelevant.*
- The student has *failed to respond to the task.*

Reading Constructed-Response Item Scoring Guide

Forms: Public Release	Item #: 9	Item Type: BCR	TB Page #: 5	AB Page #: n/a
Reporting Category: Reading				Max Score Pts: 3
Objective: 3. Analyzes Text				
Subskill: 3.1. Analyzes literary text				
Descriptor: Identifies/analyzes implied theme/message/main idea.				

Item Stem

Explain how Juan might have prevented the problems he experiences in this passage. Be sure to thoroughly support your answer using details and examples from the passage. Write your answer on the lines below.

Responses should be evaluated according to the guidelines outlined below for each score point.

3 points

- The response demonstrates a **thorough understanding** of the passage and the problems of Juan Bobo.
- The response indicates an **understanding of the larger idea** of how problems can be prevented.
- The student **clearly supports** the response with **highly relevant ideas and details** from the text. For example:
  - Juan Bobo might have asked his mother for more specific directions on how to make the pig beautiful before he started his task. He could have thought more about what she meant when she said to make the pig "look as beautiful as you can."
  - Juan Bobo could have asked for help. For example, he might have asked other members of his family, or he could have asked his mother to look at the pig before he took it to the market. Then no one would have laughed at him.

2 points

- The response demonstrates a **partial understanding** of the passage and Juan Bobo's problems.
- The response **makes some connection** between what happens in the story and how the events might have been prevented.
- The student supports the response with **accurate details** from the text. For example:
  - Juan Bobo should have asked his mother what she meant about making the pig beautiful.
  - He should have asked someone before he embarrassed himself by taking the silly-looking pig to town.

1 point

- The response demonstrates **incomplete understanding** of the reading passage and Juan Bobo's problems..
- The response refers to information in the passage, **but it does not make the connection** between story events and solutions to the problem.
- Student provides **limited or vague text-based details**. Text-based details may include ideas that are partial, too general, or too simplistic. For example:
  - Everyone laughed at Juan Bobo and the pig he fixed up to be beautiful. (unrelated)
  - Juan Bobo should have asked someone. (simplistic)

Anchor Papers for Reading
Constructed-Response Item

Explain how Juan might have prevented the problems he experiences in this passage. Be sure to thoroughly support your answer using details and examples from the passage. Write your answer on the lines below.

Juan could have prevented his problems with the pig by asking his mom exactly what to do. Juan took the words "make the pig beautiful" to litterally, and if he were to ask his mother directions for what to do then I think that wouldhve not made him go through all trouble of getting the shoes, blouse, pumps and makeup.

Score Point 3

>Demonstrates a thorough understanding of the passage and the problems of Juan Bobo. (Juan took the words "make the pig beautiful" too literally)

>Understands the larger idea of how problems can be prevented. (...asking his mom exactly what to do.)

>Response is clearly supported with highly relevant ideas and details from the text. ("make the pig beautiful; ...getting the shoes, blouse, pumps and makeup.)

Explain how Juan might have prevented the problems he experiences in this passage. Be sure to thoroughly support your answer using details and examples from the passage. Write your answer on the lines below.

He should have realized that pigs are way different than humans and don't wear the same things. Pigs don't need clothes. He should have just let it how it was when it was clean. Then more people would have wanted to buy the pig and less people would have laughed at him.

Score Point 3

>Demonstrates a thorough understanding of the passage and the problems of Juan Bobo. (Pigs don't need clothes; ...less people would have laughed at him.)

>Understands the larger idea of how problems can be prevented. (...realized that pigs are way different than humans and don't wear the same things.)

>Response is clearly supported with highly relevant ideas and details from the text. (Pigs don't need clothes; less people would have laughed at him.)

Explain how Juan might have prevented the problems he experiences in this passage. Be sure to thoroughly support your answer using details and examples from the passage. Write your answer on the lines below.

to help prevent it, he could have had someone older, that was bigger helps him take the pig there because he couldn't control the pig because it was much bigger than him.

Score Point 2

>Demonstrates a partial understanding of the passage and Juan Bobo's problems.

>Makes some connection between what happens in the story and how the events might have been prevented. (...someone older that was bigger help him.)

>Response supported with accurate details from the text. (...he couldn't control the pig because it was much bigger than him.)

Explain how Juan might have prevented the problems he experiences in this passage. Be sure to thoroughly support your answer using details and examples from the passage. Write your answer on the lines below.

I think that Juan could have prevented it by not puting so much on the pig. If the pig did not have all those articles of clothing & make-up on, it would not have felt hot and would not have needed to cool off in the mud.

Score Point 2

>Demonstrates a partial understanding of the passage and Juan Bobo's problems.

>Makes some connection between what happens in the story and how the events might have been prevented. (...prevented it by not putting so much on the pig...and would not have needed to cool off in the mud.)

>Response supported with accurate details from the text. (articles of clothing and makeup.)

Explain how Juan might have prevented the problems he experiences in this passage. Be sure to thoroughly support your answer using details and examples from the passage. Write your answer on the lines below.

He might have prevented the problem by not dressing up the pig.

Score Point 1

>Demonstrates an incomplete understanding of the passage, and Juan Bobo's problems. (Prevention of problem only.)

>Refers to words in the passage, but does not make the connection between story events and solutions to the problem.

>Student provides limited or vague text based details that are partial, general, or simplistic.

Explain how Juan might have prevented the problems he experiences in this passage. Be sure to thoroughly support your answer using details and examples from the passage. Write your answer on the lines below.

Juan could have stoped the incident by stopping and going around the mud puddle.

Score Point 1

>Demonstrates an incomplete understanding of the passage, and Juan Bobo's problems. (Prevention of problem only.)

>Refers to words in the passage, but does not make the connection between story events and solutions to the problem.

>Student provides limited or vague text based details that are partial, general, or simplistic.

Explain how Juan might have prevented the problems he experiences in this passage. Be sure to thoroughly support your answer using details and examples from the passage. Write your answer on the lines below.

He could have prevented the problems by ~~putting~~ the pig on a leash.

Score Point 0

>Demonstrates no understanding of the reading concept embodied in the task.

>The response is inaccurate, confused, or irrelevant. (Pig was already on a rope.)

>Student has written a response but failed to respond to the task.

Mathematics

Sample Directions for Administering the Mathematics Test

Make sure each student has his or her own test book, a No. 2 pencil, an extra eraser, scratch paper, and the following manipulatives:

- ❑ Ruler
- ❑ Calculator for Session 2
  (4-function calculator required; use of scientific calculator is student preference)

NOTE: *The use of a calculator is not allowed to solve the problems in Session 1.*

Also required for the operational test, but not for this released item book:

- ❑ Protractor

Students' test books should be closed.

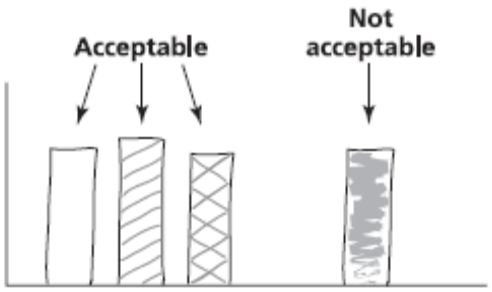
SAY **Remember to use only a No. 2 pencil in this test. In Session 1, you will be answering multiple-choice questions and short answer questions. Multiple-choice questions are questions that ask you to choose the best answer. For the multiple-choice questions, you must fill in the circle completely and make your mark heavy and dark. If you want to change an answer, completely erase the mark you made before making a new mark. You must fill in only one circle for each multiple-choice question.**

You may use scratch paper to work the multiple-choice questions, but remember to fill in the circle that goes with the answer you choose.

Short-answer questions are questions that ask you to write your answer instead of filling in a circle. Each short-answer question has a Step A and a Step B. Write your answers within the boxed area only, on the lines and/or in the space provided. Be sure to answer the question completely to show you clearly understand the question. Do not write outside the boxed area. The boxed area is your answer space. Only what you write in the answer space will be scored. You do not need to use the entire answer space.

For the short-answer questions, if you are asked to complete or draw a chart or figure, please do not use shading in your answer. If you need to erase, make sure you erase completely.

Demonstrate by drawing the illustration below on the board.



Now you will do Session 1 of the Mathematics test. Remember to read all of the directions and information in the test book. When you come to the word "STOP" at the bottom of the page, you have finished Session 1. You may go back and check your answers, but do not go on to Session 2 of the Mathematics test. When you have finished, sit quietly until everyone else has finished.

You will have 10 minutes to do Session 1. Make sure you stop at the end of Session 1.

Are there any questions?

When you are sure that all students understand the directions, continue.

SAY **Please open your test book to Page 2.**

Demonstrate. Check to be sure that all students are in the correct place in their test books.

SAY **You may begin.**

Record the starting and stopping times for Session 1.

Record the Starting Time:	Add 10 Minutes:	Record the Stopping Time:
_____	+ 10	_____

Check to be sure that students are marking and writing their answers in the appropriate places in their test books.

At the stopping time,

SAY **Stop. Put down your pencil and close your test book. This is the end of Session 1.**

Pause to be sure that all students have closed their test books. Before proceeding to Session 2, make sure each student has a calculator. During an actual test administration, students would be required to clear their calculators' memories immediately before and after each calculator-allowed session.

SAY **Now, open your test book to the page labeled "Mathematics Session 2."**

In Session 2, you will be answering multiple-choice questions and short-answer questions. Multiple-choice questions are questions that ask you to choose the best answer. Remember, for the multiple-choice questions, you must fill in the circle completely and make your mark heavy and dark. If you want to change an answer, completely erase the mark you made before making a new mark. You must fill in only one circle for each multiple-choice question.

Short-answer questions are questions that ask you to write your answer instead of filling in a circle. Each short-answer question has a Step A and a Step B. Write your answers within the boxed area only, on the lines and/or in the space provided. Be sure to answer the question completely to show you clearly understand the question. Do not write outside the boxed area. The boxed area is your answer space. Only what you write in the answer space will be scored. You do not need to use the entire answer space.

Remember, for the short-answer questions, if you are asked to complete or draw a chart or figure, please do not use shading in your answer. If you need to erase, make sure you erase completely.

You will have 35 minutes to do Session 2. Remember to read all of the directions and information in this part of the test book. When you come to the word "STOP" at the bottom of the page, you have finished Session 2.

You may go back over Session 2 to check your answers, but do not go back to Session 1. When you have finished, sit quietly until everyone else has finished.

Are there any questions?

When you are sure that all students understand the directions, continue.

SAY **You may begin.**

Record the starting and stopping times for Session 2.

Record the Starting Time:	Add 35 Minutes:	Record the Stopping Time:
_____	+ 35	_____

SAY **Stop. This is the end of Session 2. Please close your test book.**

Collect all test materials. Use the information on the following pages to score the multiple-choice and constructed-response items.

Mathematics Item Information

Item	Answer Key	Calculator Allowed	Objective/ Subskill	Depth of Knowledge Level	2005–06 Item Statistics SR: Percent of Students who Chose A, B, C, or D (*Indicates Correct Response). BCR: Percent of Students who Received 0, 1, or 2 Points Format	A or 0	B or 1	C or 2	D	Scale Score Location
1	B	No	Fb	2	SR	9%	*83%	4%	5%	503
2	B	No	Bb	2	SR	35%	*52%	7%	5%	589
3	D	No	Fa	2	SR	21%	11%	11%	*56%	546
4	D	No	Fc	2	SR	11%	11%	8%	*69%	524
5	B	No	Fb	2	SR	6%	*84%	7%	3%	498
6	D	No	Fa	3	SR	8%	6%	13%	*72%	546
7	D	Yes	Ba	1	SR	1%	1%	4%	*94%	439
8	D	Yes	Cb	2	SR	14%	12%	7%	*66%	527
9	A	Yes	Da	1	SR	*62%	18%	6%	13%	584
10	D	Yes	Ca	1	SR	5%	25%	21%	*49%	577
11	D	Yes	Eb	2	SR	21%	8%	4%	*67%	537
12		Yes	Dc	4	A-BCR	75%	21%			595
12		Yes	Ae	4	B-BCR	63%	17%	13%		592
13	D	Yes	Dc	2	SR	9%	10%	29%	*52%	560
14	D	Yes	Ba	2	SR	7%	16%	27%	*49%	587
15	A	Yes	Eb	3	SR	*69%	8%	19%	3%	579
16	C	Yes	Fa	2	SR	5%	2%	*56%	37%	566
17		Yes	Dc	2	A-BCR	34%	62%			524
17		Yes	Ac	4	B-BCR	43%	18%	29%		563
18	C	Yes	Cb	1	SR	5%	4%	*86%	5%	455
19	B	Yes	Ea	1	SR	2%	*92%	4%	2%	450
20	B	Yes	Cc	2	SR	25%	*58%	9%	6%	581

Objective/Subskill and Depth of Knowledge Level information follows this table.
SR: selected response; A-BCR: brief constructed response, part A; B-BCR: brief constructed response, part B.

Performance Category Scale Score Range

Minimal Performance	Basic	Proficient	Advanced
482 and below	483–512	513–572	573 and above

Mathematics Objectives and Subskills

Beginning of Grade 8

How to use the Framework

The mathematics assessment framework is an indication of the knowledge and skills that will be assessed on the November WKCE-CRT. ***This information does not replace your local curriculum***. However, you may wish to ensure that your local curriculum includes the knowledge and skills described in the framework.

This section of the framework describes the types of content that students may encounter on the WKCE-CRT

The knowledge and skills to be assessed are organized into objectives, subskills, and descriptors as shown below. WKCE-CRT results will be reported by objectives and subskill.

A. Objective: A group of cognitively related skills.

A.a. **Subskill:** A group of related knowledge and skills that ***may include, but is not limited to,*** the descriptors which follow.

- **Descriptor:** an example of a specific knowledge or skill that may be assessed.

Objectives, Subskills, and Descriptors

Objective A: **Mathematical Processes**

Students will effectively use mathematical knowledge, skills, and strategies related to reasoning, communication, connections, representation, and problem solving.

Descriptors, such as but not limited to

- Use reasoning and logic to:
  - Perceive patterns
  - Identify relationships
  - Formulate questions
  - Pose problems
  - Make conjectures
  - Justify strategies
  - Test reasonableness of results
- Communicate mathematical ideas and logical reasoning using the vocabulary of mathematics in a variety of ways (e.g., using words, numbers, symbols, pictures, charts, tables, diagrams, graphs, and models).
- Connect mathematics to the real world, as well as within mathematics.
- Create and use representations to organize, record, and communicate mathematical ideas.
- Solve and analyze routine and non-routine problems.

Objective B: **Number Operations and Relationships**

Subskill B.a.: **Concepts**

Descriptors, such as but not limited to

- Recognize and apply place-value concepts to numbers less than 100,000,000 with decimals to the thousandths place.

- Read, write, and represent numbers using words, numerals, number lines, arrays, expanded form (12.09 = 10+2+.09), and symbolic renaming (12.09 = 13-.91).
- Compare and order a set of fractions or decimals (to the hundredths place) and use symbols (<, >, =, ≠).
- Identify and use number theory concepts:
  - prime and composite numbers
  - divisibility potential of numbers (divisors of 1-10, 25, and multiples of 10).
  - least common multiples
  - greatest common factor of two numbers
- Demonstrate understanding of fractions and percents with and without contexts (e.g., sales tax and discounts, 40 is 25 percent of what number?, What number is 25 percent of 160?)
- Apply proportional reasoning to a variety of problem situations (e.g. comparisons, rates, and similarities).
- Identify equivalent forms of fractions, decimals and percents.

Subskill B.b.: **Computation**

Descriptors, such as but not limited to

- Use all operations in everyday situations to solve single- or multi-step word problems.

  Solve problems involving percents with and without context.
-
  - Add and subtract decimals including thousandths with and without text.
  - Multiply decimals and integers (-100 to 100) including thousandths with and without context (e.g., interest rates).
  - Divide decimals and integers in problems with and without context.
- Demonstrate understanding of the concept of division of fractions in a contextual setting.
- Add and subtract mixed numbers and fractions with unlike denominators, multiply mixed numbers.
- Estimate the sum, difference, and product of whole numbers, common fractions, mixed numbers, and decimals to thousandths.
- Determine reasonableness of answers.

Objective C: **Geometry**

Subskill C.a.: **Describing figures**

Descriptors, such as but not limited to

- Name 3-dimensional figures (e.g., rectangular prisms, square pyramids, cones, cylinders, and spheres).
- Find the measure of the third angle of a triangle when given the measures of two interior or exterior angles.
- Determine the sum of the angles of a polygon using diagonals drawn from one vertex.
- Determine the measure of an angle in a drawing of an adjacent and supplementary or adjacent and complementary pair of angles when given the measure of the other angle.

Subskill C.b.: **Spatial relationships and transformations**

Descriptors, such as but not limited to

- Draw and/or describe a similar figure when given a polygon drawn on graph paper with vertices at lattice points.
- Identify figures that are congruent and/or similar.
- Demonstrate understanding of similarity by finding the relationship between the sides of

two figures.

- Draw or identify the image of a figure based on one or more transformations (reflection, rotation, and/or translation).
- Design symmetrical shapes.
  Draw or identify lines of symmetry.
- Classify figures possessing line symmetry only, line and rotation symmetry, rotational symmetry only, no symmetry.
- Identify and describe 3-dimensional figures from multiple perspectives.

Subskill C.c.: **Coordinate systems**

Descriptors, such as but not limited to

- Identify, locate, plot coordinates in all four quadrants; draw or identify the reflection of a point across the x- or y-axis or the translation of a point at integer coordinates in any of the four quadrants.
- Locate or plot coordinates in any of the four quadrants using a geometric figure (e.g., transformations).

Objective D: **Measurement**

Subskill D.a.: **Measurable attributes**

Descriptors, such as but not limited to

- Select the appropriate unit of measure (U.S. customary and metric) to estimate the length, liquid capacity, volume, time, and weight/mass of everyday objects.
- Convert units within a system (e.g., feet to yards; ounces to pounds; inches to feet; pints to quarts).

  Approximate conversions of units between metric and U.S. customary systems using a model or in context (quart/liter; yard/meter).

Subskill D.b.: **Direct measurement**

Descriptors, such as but not limited to

- Apply appropriate tools techniques to measure down to the nearest 1/4-, 1/8- or 1/16-inch or nearest centimeter or millimeter.
- Determine and compare elapsed time in problem-solving situations.
- Measure and/or draw angles up to 360 degrees.

Subskill D.c.: **Indirect measurement**

Descriptors, such as but not limited to

- Estimate area given a reference.
- Determine perimeter/circumference and area of polygons and circles with and without context.
- Determine the distance between points using a scale.
- Determine volume and surface area of cylinders, rectangular prisms and pyramids with base shapes of triangle, square, regular pentagon and regular hexagon in real-world context.
- Draw similar figures in any shape using a scale factor (e.g., enlarge/shrink).
- Use ratio and proportion in context.
- Use d = r*t formula in simple contexts.

Objective E:	**Statistics and Probability**
Subskill E.a.:	**Data analysis and statistics**
	Descriptors, such as but not limited to
	• Compare two sets of data to generate or confirm/deny hypotheses.
	• Extract, interpret and analyze data including multiple representations of the same data from tables, double back-to-back stem-and-leaf plots, double bar graphs, simple circle graphs, line plots, line graphs, charts and diagrams with and without context.
	• Create graph with one-variable data sets using back-to-back stem-and-leaf plots, double bar graphs, circle graphs, line plots and line graphs; discuss appropriateness of graph selected.
	• Find mean, median (with odd or even number of data), mode, and range of a set of data with and without context.
	• Evaluate sources of data in context and multiple representations of a given data set.
	• Compare two sets of data to generate or confirm/deny hypotheses.
Subskill E.b.:	**Probability**
	Descriptors, such as but not limited to
	• Determine the likelihood of an event and probability based on one or two dependent or independent events.
	• Use probabilities to estimate outcomes and evaluate fair and unfair simple events.
	• Use data from simulations provided in charts/tables to solve and interpret probability problems.
	• Determine the number of arrangements from a set of 5 or less. Ex: How many different ways could 5 students stand in line?
	• Solve problems involving sample spaces or diagrams.
	• Analyze outcomes based on an understanding of theoretical and experimental probability.

Objective F:	**Algebraic Relationships**
Subskill F.a.:	**Patterns, relations and functions**
	Descriptors, such as but not limited to
	• Use two concurrent numeric patterns to describe and analyze functional relationships between two variables. Describe and analyze in words functional relationships in two concurrent numeric patterns using multiplication and exponents and describe the relationship in words.
	• Extend an increasing or decreasing arithmetic or geometric pattern.
	• Describe and interpret linear patterns in tables and graphs.
	• Identify the rule to complete or extend a function table or any combination of the two using one or two operations (+, -, x, ÷) and numbers (-100 through 100) in the function table.
	• Describe real-world phenomena represented by a graph. Describe real-world phenomena that a given graph might represent.
	• Justify the accuracy of the chosen item in a sequence.
Subskill F.b.:	**Expressions, equations and inequalities**
	Descriptors, such as but not limited to
	• Solve single-variable inequalities using symbols.

- Solve single-variable, one- and two-step equations with whole number, whole number integer, or rational coefficients with and without context.
- Find values of expressions with one variable and up to two operations including basic operations and exponents.
- Solve two-step, multi-operation equations with letter variables and whole number or integer coefficients with and without context.
  Ex: $-3x + 1 =$.
- Write an algebraic expression (with one or two operations) which generalizes a linear pattern.
- Create a corresponding algebraic expression when given an arithmetic operation/relationship expressed in words.
- Evaluate formulas with and without context by solving for a specified variable.

Subskill F.c.: **Properties**

Descriptors, such as but not limited to

- Identify a pair of equivalent numerical or one-variable expressions when using commutative or associative properties with addition and multiplication.
- Demonstrate understanding of up to four-step order of operations expression using parentheses, exponents and fraction symbol.
- Demonstrate understanding of distributive property without variables.
- Solve order of operations problems with one variable to demonstrate understanding of commutativity and associativity.

Mathematics Depth of Knowledge

The representative examples for the following depth of knowledge categories are intended to reflect student performance expectations with regard to the level of mental effort and amount of information integrated by the student. Items are targeted at one of four levels of cognitive demand. Each level of demand is represented by items with a range of difficulty, as indicated by the percentage of students who answered the item correctly or by scale score location. Assuming grade-appropriate vocabulary and test items, these levels are viable and useful across all grades.

Level 1: Recognizing and Recalling

Students recognize and recall basic facts, terms, concepts, and definitions of the content and processes of mathematics. For example, students may be required to do computation with whole numbers, fractions, decimals, and integers.

Level 2: Using Fundamental Concepts and Procedures

Students describe or apply basic facts, terms, rules, concepts and definitions of the content and processes of mathematics.

Level 3: Concluding and Explaining

Students demonstrate an understanding of complex ideas, draw conclusions based on this understanding, and communicate ideas and conclusions effectively.

Level 4: Evaluating, Extending, and Making Connections

Students synthesize skills and techniques from various concepts of mathematics to solve multifaceted problems, and justify conclusions using mathematical definitions, properties, and principles. For example, students may be required to support mathematical arguments with definitions, properties, and principles.

Mathematics Rubric for Constructed-Response Items

Step B of the constructed-response items is scored using a generic rubric.

2 points The student demonstrates a thorough understanding of the mathematical concepts and/or procedures represented in the problem. The student uses appropriate mathematical procedures and/or concepts to explain or justify the response to Step A, and provides clear and complete explanations and interpretations containing words, calculations, or symbols, unless otherwise specified in the item stem.

The response may contain minor flaws that do not detract from the demonstration of a thorough understanding of the problem.

1 point The student demonstrates only a partial understanding of the mathematical concepts and/or procedures represented in the problem. The response lacks an essential understanding of the underlying mathematical concepts used to provide the response to Step A.

The response contains errors related to the misinterpretation of important aspects of the problem, misuse of mathematical procedures and/or concepts, or misinterpretation of results.

0 points The student provides a completely incorrect explanation or justification, or one that cannot be interpreted, or no response at all.

Mathematics Constructed-Response Item Scoring Guides

Form: Public Release	Item #: 12	Item Type: BCR	TB Page #: 8	AB Page #: n/a
Objective for Step A: D. Measurement				Max Score Pts: Step A: 0–1 Step B: 0–2
Subskill: D.c. Indirect Measurement				
Objective for Step B: A. Mathematical Processes				

Step A: Response is limited to correct answer or range below

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Step B: Responses <u>may</u> include, but may <u>not be limited to</u>, the Answer Cues below

2 points <u>Both</u> of the following tasks are accomplished:

- The student calculates the volume of the pot and one jar, or indicates in words how to do the calculation.
- The student divides the volume of the pot by the volume of one jar, or indicates in words how to do this. (See Note 1 below.)

1 point <u>One</u> of the following applies:

- The student accomplishes both of the above tasks, but makes a computational error. (See Note 2 below.)
- The student calculates the volume of just the pot or jar, or indicates in words how to do this calculation.
- The student indicates that the number of jars is the volume of the pot divided by the volume of one jar, but does not explain how the volumes are calculated.
- The student makes a consistent conceptual error, such as substituting diameter for radius in an otherwise correct volume calculation.

0 points The student provides a completely incorrect explanation or justification, or one that cannot be interpreted.

Note 1: Full credit is awarded to the student who recognizes (explicitly or implicitly) that in this division the height of salsa in the pot and jars is the same, and that π is a constant, so that the number of jars is just the square of the ratio of diameter sizes.

Note 2: If an arithmetic error leads to loss of credit for Step A, and the process is otherwise correct, award full credit for Step B.

Form: Public Release	Item #: 17	Item Type: BCR	TB Page #: 11	AB Page #: n/a
Objective for Step A: D. Measurement				Max Score Pts: Step A: 0–1
Subskill: D.c. Indirect Measurement				
Objective for Step B: A. Mathematical Processes				Step B: 0–2

Step A: Response is limited to correct answer or range below

5,400

Step B: Responses may include, but may not be limited to, the Answer Cues below

2 points One of the following applies (See Note 1 below.):

- The student calculates the area of the stand, and divides the volume of water by this area to determine the depth of water (20 inches).
- The student divides 7200 by 5400 and multiplies the result by the original depth (15 inches).
- The student determines the depth by any other method that demonstrates an understanding of volume. (See Note 2 below.)

1 point One of the following applies:

- The student gives one of the above calculations, but with a computational error. (See Note 3 below.)
- The student only calculates the area of the stand (360 square inches).
- The student gives the final depth only (20 inches), without explanation.
- The student shows an understanding of volume, but not of solving for a specified dimension.

0 points The student provides a completely incorrect explanation or justification, or one that cannot be interpreted.

Note 1: An explanation of any of these methods in words only receives full credit.

Note 2: Give credit to any computation showing that the student can calculate the missing dimension of a rectangular prism, given volume and 2 other dimensions.

Note 3: If an arithmetic error leads to loss of credit for Step A, and the process is otherwise correct, award full credit for Step B.

Anchor Papers for Mathematics
Constructed-Response Items

Item 12

Kate makes a batch of salsa in a large cylindrical pot. The inside of the pot is 9 inches in diameter, and it is filled with 4 inches of salsa. Kate plans to store the salsa in small cylindrical glass jars that are 3 inches in diameter and 4 inches high.

$V = \pi r^2 h$

Step A

How many glass jars will Kate need for all of the salsa? (Use 3.14 to approximate π.)

Answer: 9 glass jars

Step B

Explain how you determined the number of glass jars Kate will need. Use words and/or numbers in your explanation.

I took 4.5 x 4.5 = 20.25. Then I took 3.14 x 20.25 x 4 = 254.34. Then I took 1.5 x 1.5 = 2.25. Then I took 3.14 x 2.25 x 4 = 28.26. Then I took 254.34 ÷ 28.26 = 9.

Step A
- Score Point 1
- > Correct

Step B
- Score Point 2
- > Correct volumes for pot and jars
- > Volume of jars correctly divided into volume of pot

Item 12

Kate makes a batch of salsa in a large cylindrical pot. The inside of the pot is 9 inches in diameter, and it is filled with 4 inches of salsa. Kate plans to store the salsa in small cylindrical glass jars that are 3 inches in diameter and 4 inches high.

$V = \pi r^2 h$

Step A

How many glass jars will Kate need for all of the salsa? (Use 3.14 to approximate π.)

Answer: 9 glass jars

Step B

Explain how you determined the number of glass jars Kate will need. Use words and/or numbers in your explanation.

I found the volume of the pot and the the volome of a glass jar and then divided the volume of the pot by the volume of the jar to get 9 which is how may glass jars needed.

Step A
  Score Point 1
  > Correct
Step B
  Score Point 1
  < [no indication of how volume is calculated]
  > Volume of jars correctly divided into volume of pot

Item 12

Kate makes a batch of salsa in a large cylindrical pot. The inside of the pot is 9 inches in diameter, and it is filled with 4 inches of salsa. Kate plans to store the salsa in small cylindrical glass jars that are 3 inches in diameter and 4 inches high.

$V = \pi r^2 h$

Step A

How many glass jars will Kate need for all of the salsa? (Use 3.14 to approximate π.)

Answer: 9 glass jars

Step B

Explain how you determined the number of glass jars Kate will need. Use words and/or numbers in your explanation.

I found out the volume of both, then divided

Step A
  Score Point 1
  > Correct
Step B
  Score Point 0
  < [no calculation of volumes]
  < [no indication of what is being divided by what]

Item 12

Kate makes a batch of salsa in a large cylindrical pot. The inside of the pot is 9 inches in diameter, and it is filled with 4 inches of salsa. Kate plans to store the salsa in small cylindrical glass jars that are 3 inches in diameter and 4 inches high.

$V = \pi r^2 h$

Step A

How many glass jars will Kate need for all of the salsa? (Use 3.14 to approximate π.)

Answer: 9.06 glass jars

Step B

Explain how you determined the number of glass jars Kate will need. Use words and/or numbers in your explanation.

first I figured out the volume of salsa in the pot then how much could be held in the jars so I ÷ the amount of salsa by the volume of the Jars

Step A
Score Point 0
< [incorrect]
Step B
Score Point 1
< [no indication of how volume is calculated]
> Volume of jars correctly divided into volume of pot

Item 12

Kate makes a batch of salsa in a large cylindrical pot. The inside of the pot is 9 inches in diameter, and it is filled with 4 inches of salsa. Kate plans to store the salsa in small cylindrical glass jars that are 3 inches in diameter and 4 inches high.

$V = \pi r^2 h$

Step A

How many glass jars will Kate need for all of the salsa? (Use 3.14 to approximate π.)

Answer: 254.469 glass jars

Step B

Explain how you determined the number of glass jars Kate will need. Use words and/or numbers in your explanation.

I took the diameter 9 and divided by 2 which gave me half of 9 & then did $\pi \cdot 4.5^2 \cdot 4 = 254.469$

Step A
Score Point 0
< [incorrect]
Step B
Score Point 1
> Correct volume calculation for pot
< [no indication of dividing volumes]

Item 12

Kate makes a batch of salsa in a large cylindrical pot. The inside of the pot is 9 inches in diameter, and it is filled with 4 inches of salsa. Kate plans to store the salsa in small cylindrical glass jars that are 3 inches in diameter and 4 inches high.

$V = \pi r^2 h$

Step A

How many glass jars will Kate need for all of the salsa? (Use 3.14 to approximate π.)

Answer: 113 glass jars

Step B

Explain how you determined the number of glass jars Kate will need. Use words and/or numbers in your explanation.

Using the equation $V = \pi r^2 h$ I found that she will need 113 jars. I took $V = 3.14 \times 9 \times 4$.

Step A
Score Point 0
< [incorrect]
Step B
Score Point 0
< [incorrect calculation of volume of jar (squares diameter)]
< [no division of volume of jars into volume of pot]

Item 17

Scott has an old fish tank in the shape of a box. It fits exactly onto a rectangular stand that is 12 inches wide and 30 inches long. The tank can be filled with water to a depth of 15 inches.

Step A

What is the total volume of water that Scott's old fish tank can hold?

Answer: 5,400 cubic inches

Step B

Scott is buying a new fish tank that fits on the same stand as the old tank, but holds up to 7,200 cubic inches of water. Use what you know about volume to explain how to find the depth of the water in the new fish tank. Use words and/or numbers in your explanation.

$12 \cdot 30 = 360$

$7{,}200 \div 360 = 20$

$12 \cdot 30 \cdot 20 = 7200$

Step A
- Score Point 1
- > Correct

Step B
- Score Point 2
- > Correctly calculates area of the stand
- > Correctly calculates depth of the water

Item 17

Scott has an old fish tank in the shape of a box. It fits exactly onto a rectangular stand that is 12 inches wide and 30 inches long. The tank can be filled with water to a depth of 15 inches.

Step A

What is the total volume of water that Scott's old fish tank can hold?

Answer: 5400 cubic inches

Step B

Scott is buying a new fish tank that fits on the same stand as the old tank, but holds up to 7,200 cubic inches of water. Use what you know about volume to explain how to find the depth of the water in the new fish tank. Use words and/or numbers in your explanation.

12x30x20=7200

Step A
Score Point 1
> Correct
Step B
Score Point 1
> Partial credit for "guess and check" method (with calculation)

Item 17

Scott has an old fish tank in the shape of a box. It fits exactly onto a rectangular stand that is 12 inches wide and 30 inches long. The tank can be filled with water to a depth of 15 inches.

Step A

What is the total volume of water that Scott's old fish tank can hold?

Answer: 5,400 cubic inches

Step B

Scott is buying a new fish tank that fits on the same stand as the old tank, but holds up to 7,200 cubic inches of water. Use what you know about volume to explain how to find the depth of the water in the new fish tank. Use words and/or numbers in your explanation.

Guess and check.

Step A
Score Point 1
> Correct
Step B
Score Point 0
< ["guess and check" is unacceptable without any work shown]

Item 17

Scott has an old fish tank in the shape of a box. It fits exactly onto a rectangular stand that is 12 inches wide and 30 inches long. The tank can be filled with water to a depth of 15 inches.

Step A

What is the total volume of water that Scott's old fish tank can hold?

Answer: 375 cubed cubic inches

Step B

Scott is buying a new fish tank that fits on the same stand as the old tank, but holds up to 7,200 cubic inches of water. Use what you know about volume to explain how to find the depth of the water in the new fish tank. Use words and/or numbers in your explanation.

First I took 12 times 30 to get 360. Then I divided 7200 by 360 to get 20. Then I tried the equation $12 \cdot 30 \cdot 20 = 7200$ and I was correct.

Step A
- Score Point 0
- < [incorrect]

Step B
- Score Point 2
- > Correctly calculates area of the stand
- > Correctly calculates depth of the water

Item 17

Scott has an old fish tank in the shape of a box. It fits exactly onto a rectangular stand that is 12 inches wide and 30 inches long. The tank can be filled with water to a depth of 15 inches.

Step A

What is the total volume of water that Scott's old fish tank can hold?

Answer: 4800 cubic inches

Step B

Scott is buying a new fish tank that fits on the same stand as the old tank, but holds up to 7,200 cubic inches of water. Use what you know about volume to explain how to find the depth of the water in the new fish tank. Use words and/or numbers in your explanation.

12x30=360 then use guess & ✓
Ans=20 in

Step A
Score Point 0
< [incorrect]
Step B
Score Point 1
> Correctly calculates area of the stand
< [no credit for "guess and check" without work shown]

Item 17

Scott has an old fish tank in the shape of a box. It fits exactly onto a rectangular stand that is 12 inches wide and 30 inches long. The tank can be filled with water to a depth of 15 inches.

Step A

What is the total volume of water that Scott's old fish tank can hold?

Answer: 47 cubic inches

Step B

Scott is buying a new fish tank that fits on the same stand as the old tank, but holds up to 7,200 cubic inches of water. Use what you know about volume to explain how to find the depth of the water in the new fish tank. Use words and/or numbers in your explanation.

If it fits in the stand at 12 inches wide and 30 inches long and holds up to 7,200 cubic inches of water the the depth of the water in the new fish tank would be 30 inches

Step A
Score Point 0
< [incorrect]
Step B
Score Point 0
< [no calculation of area of the stand]
< [no calculation of depth of the water]

Guide to Grade 8 Released Item Books
In READING and MATHEMATICS

Wisconsin Department of Public Instruction
Elizabeth Burmaster, State Superintendent